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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,935	11/06/2003	Leon Chernyak		2934

34069 7590 01/29/2007

LEON CHERNYAK
112 ACADEMY HILL RD. #1
BRIGHTON, MA 02135

EXAMINER	
LANIER, BENJAMIN E	
ART UNIT	PAPER NUMBER
2132	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.	Applicant(s)	
10/605,935	CHERNYAK ET AL.	
Examiner	**Art Unit**	
Benjamin E. Lanier	2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24,29-31 and 39-43* is/are rejected.

7)☒ Claim(s) *25-28 and 32-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
There are no inventor signatures or a showing or indication that it was signed (37 CFR 1.63).

Claim Objections

3. Claims 25-28, 32-38 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

4. Claim 42 is objected to because of the following informalities: Claim 42 is a system claimed but is claimed as a method. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 12 recites the limitation "said index" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-24, 29-31, 39, 40-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffstein, U.S. Patent No. 6,298,137. Referring to claim 1, 6, 8, 10, 11-14, 16-24, 29-31, 40-42, Hoffstein discloses a ring-based public key cryptosystem where communication of information is provided between users by generating a ring R, ideals P and Q in R, a set of coset representatives Cq for the ring R modulo the ideal Q, and a set of coset representatives Cp for the ring R modulo the ideal P, generating at least one public key element h1,...,hk in the ring R as a function of at least two private key elements f1,...,fn in R and the ideal Q of the first user (Abstract), generating an element e in R as a function of the ideals P and Q, and the public key elements h1,...,hk (Abstract), a private message element m in R, and at least one private random element Ø1,...,ØI of the second user, which meets the limitation of generating a module V over a ring R, generating an outer component P of encryption key that includes sequence (p1,p2,...,pk) where each member pj of the sequence belongs to the set {1,2....,m}. generating an inner component Q of encryption key that includes elements v1, v2,...,vm of V and automorphisms g1,g2,...,gm of V, generating the encryption key K=(P,Q) where P is the outer component and Q is the inner component, generating an encryption automorphism T of V based

on the encryption key K, where T includes a composition of certain automorphisms T1,T2,...,Tm of the module V, which composition is performed in the order prescribed by P, generating automorphisms T1,T2,...,Tm of finite orders, generation of each automorphism Ti of the order 2, generating an encrypted message element E as a function of a message element M in V and of the encryption automorphism T. Transmitting the element e from the second user to the first user, such that the first user can determine the message element m by computing a result A in R of evaluating a function F of E, f1,...,fn, computing a coset representative a of A in the set of coset representatives Cq, computing a result B of evaluating a function G of a, f1,...,fn, computing a coset representative a of A in the set of coset representative b of B in the set of coset representatives Cq, and computing a result c in the set of coset representatives Cp of evaluating a function H of b, f1,...,fn (Abstract), which meets the limitation of transmitting the encrypted message element along with the outer component P from one user to another, generating the outer component P of decryption key that includes sequence (pk,pk-1,...,p1), generating the decryption key K'=(P';Q'), where P' is the outer component of the decryption key and Q' is the inner component of the decryption key which is equal to the inner component Q of the encryption key, generating a decryption automorphism Td of V based on the decryption key K', where Td includes a composition of automorphism T1,T2,...Tm, which composition is performed in the order prescribed by P', determining the message element M as a function of the encrypted message element E and of the decryption automorphism Td, where the function is the same as that one used in generation of E.

Referring to claim 2, Hoffstein discloses that the ring is a ring of polynomials with integer coefficient modulo the ideal consisting of all multiples of (x^n) – 1 (Col. 5, lines 46-49), which meets the limitation of the ring R is any commutative or non-commutative ring.

Referring to claim 3, Hoffstein discloses that an element in ring R is a vector (Col. 4, lines 56-59), which meets the limitation of V is a projective module over the ring R.

Referring to claim 4, Hoffstein discloses that dimension of the system is greater than 1 (Col. 10, lines 35-39), which meets the limitation of V is a free R-module of dimension n, and where n is an integer greater than 1.

Referring to claim 5, Hoffstein discloses that the vector is an element comprising a set of elements in the ring R (Col. 4, lines 55-64), which meets the limitation of the R-module V is the standard free module R, where V is the set of all n-tuples x=[x1,x2,...,xn] of elements of R.

Referring to claim 7, Hoffstein discloses that elements f and g of the ring are generated and generating element Fq, which is an inverse of f (mod q), and generating Fp, which is an inverse of f (mod p) (Col. 3, lines 2-5), which meets the limitation of said ring R is the skew field of quanternions.

Referring to claim 9, Hoffstein discloses that the ring is a ring of matrices (Col. 8, lines 64-65), which meets the limitation of the ring R is the ring of matrices over the field of real numbers.

Referring to claims 15, 39, 43, Hoffstein discloses that the encrypted message is transmitted from one user to another over a channel (Figure 1 & Col. 11, lines 15-16).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Paar, U.S. Patent No. 7,069,287

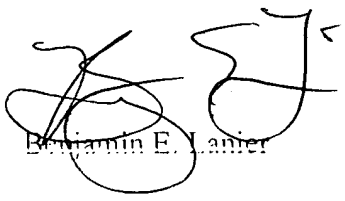
Koh, U.S. Patent No. 7,136,484

Paeng, U.S. Publication No. 2004/0156498

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin E. Lanier whose telephone number is 571-272-3805. The examiner can normally be reached on M-Th 7:30am-5:00pm, F 7:30am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Benjamin E. Lanier

IDS - 11/06/2003

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	Geometry-Based Symmetric Cryptosystem Method

Application Number :

Confirmation Number:

First Named Applicant: Leon Chernyak

Attorney Docket Number:

Art Unit:

Examiner:

Search string: (5740250 or 6038317 or 6298137).pn

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
BL	1	5740250	1998-04-01	Moh			
	2	6038317	2000-03-01	Magliveras et al			
	3	6298137	2001-10-01	Hoffstein et al			

Signature

Examiner Name	Date
/Benjamin Lanier/	01/17/2007

Notice of References Cited	Application/Control No. 10/605,935	Applicant(s)/Patent Under Reexamination CHERNYAK ET AL.	
	Examiner Benjamin E. Lanier	Art Unit 2132	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,298,137	10-2001	Hoffstein et al.	380/30
*	B	US-7,069,287	06-2006	Paar et al.	708/492
*	C	US-7,136,484	11-2006	Koh, Jee H.	380/28
*	D	US-2004/0156498	08-2004	Paeng et al.	380/030
	E	US-			
	F	US-			
	G	US-			
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FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.